## REMARKS/ARGUMENTS

Support for amended Claim 1, 11 and 18 is found in original Claim 12 and at specification page 12, lines 30-35.

The rejection of Claims 1-3, 6-10 and 12-19 under 35 U.S.C. 103(a) as being unpatentable over Taira (JP 2001-34255, English computer translation) in view of Schaeffer (6,123,997) and Warnes (2003/0022012) is traversed.

The Office asserts that "[T]aira teaches a process of seeding an alpha alumina layer by preparing the surface using a PVD layer of chrome oxide prior to forming the alumina layer [0003]. In other words, Taira requires the chrome oxide layer to form the alumina layer. However, Taira fails to disclose "treating the surface of the substrate with a ceramic powder mainly having a crystal structure which is the same as the crystal structure of alumina in the alpha crystal structure to form fine scratches on the surface of the substrate" as in amended Claim 1.

On the contrary, Applicants disclose that the ceramic power used to form the scratches on the surface of the substrate does not have to necessarily be present after forming the scratches to deposit the alpha alumina film because the ceramic powder is washed away prior to depositing the alpha alumina film as in amended Claim 1. In fact, Applicants have discovered that scratches formed by the ceramic powder can serve to generate the α-alumina crystal nuclei during alumina deposition as disclosed as follows (See, specification, page 10, lines 1-7, emphases added):

> "The fact that the quasi-α-alumina film is formed on a Si wafer only when the wafer is treated with alumina powder in α crystal structure suggests that fine scratches and dents reflecting the α crystal structure of alumina powder are formed on the Si wafer **or** a trace amount of the alumina powder in α crystal structure used is left on the substrate surface by the pretreatment and that the scratch and dent **or** the alumina powder remaining in a trace amount serve to start the generation of α-alumina crystal nuclei during alumina deposition."

However, Taira does not even recognize that the scratches formed by the ceramic powder can serve to generate the α-alumina crystal nuclei during alumina deposition and consequently does not disclose "treating the surface of the substrate with a ceramic powder mainly having a crystal structure which is the same as the crystal structure of alumina in the alpha crystal structure to form fine scratches on the surface of the substrate" as in amended Claim 1.

Furthermore, Applicants disclose washing the surface prior to forming the alpha alumina layer as in amended Claim 1 and as disclosed as follows (See, specification, page 12, lines 30-35, Example 1, emphasis added):

"A Si wafer substrate (size: ca. 20 mm × 20 mm) was pretreated under each of the following three conditions (A) to (C) and washed to give a substrate having a clean surface; the substrate was then oxidized; and an alumina film was formed thereon. Alumina powder having an average particle diameter of 1 μm and a composition of $Al_2O_3$ of 99.7 mass % was used as the following alumina powder. The fact that the alumina powder mainly had α crystal structure was confirmed separately by X-ray diffraction analysis."

Thus, Applicants clearly show that the scratches not the remaining ceramic powder serve to form the alpha alumina film by disclosing washing the substrate to give the substrate having a clean surface.

However, Taira simply fails to disclose washing the surface prior to forming the alpha alumina layer as in amended Claim 1.

Thus, in light of teachings by Taira, one of ordinary skill in the art would not have foreseen the method as in amended Claim 1, particularly comprising treating the surface of the substrate with a ceramic powder mainly having a crystal structure which is the same as the crystal structure of alumina in the alpha crystal structure to form fine scratches on the surface of the substrate; and washing away the ceramic powder to leave the fine scratches on the surface of the substrate.

The secondary references to Schaeffer and Warnes do not cure the deficiencies of Taira.

Schaeffer discloses forming a mature alpha alumina on a bond coat. Warnes discloses forming a diffusion aluminide bondcoat on a substrate. However, neither Schaeffer nor Warnes disclose or suggest a method comprising treating the surface of the substrate with a ceramic powder mainly having a crystal structure which is the same as the crystal structure of alumina in the alpha crystal structure to form fine scratches on the surface of the substrate; and washing away the ceramic powder to leave the fine scratches on the surface of the substrate as in amended Claim 1.

Therefore, Taira in combination with Schaeffer and Warnes cannot render obvious amended Claim 1 and the dependent claims therefrom.

Withdrawal of the rejection is respectfully requested.

The rejection of Claims 1, 4, 5 and 11 under 35 U.S.C. 103(a) as being unpatentable over Iyori (6,254,984) in view of Taira (JP 2001-342556, English computer translation), Warnes (2003/0022012) and Schaeffer (6,123,997) is traversed.

Iyori discloses a multi-layer-coated member. However, Iyori does not disclose or suggest a method comprising treating the surface of the substrate with a ceramic powder mainly having a crystal structure which is the same as the crystal structure of alumina in the alpha crystal structure to form fine scratches on the surface of the substrate; and washing away the ceramic powder to leave the fine scratches on the surface of the substrate as in amended Claim 1.

As discussed above, none of the secondary references to Taira, Warnes and Schaeffer disclose or suggest treating the surface of the substrate with a ceramic powder mainly having a crystal structure which is the same as the crystal structure of alumina in the alpha crystal

structure to form fine scratches on the surface of the substrate; and washing away the ceramic powder to leave the fine scratches on the surface of the substrate as in amended Claim 1.

Therefore, Iyori in combination with Taira, Warnes and Schaeffer cannot render obvious amended Claim 1 and the dependent claims therefrom.

Withdrawal of the rejection is respectfully requested.

It is believed that the rejection of Claims 1-19 under 35 U.S.C. 112, second paragraph, is obviated by the present amendment.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/09)

Soonwuk Cheong, Ph.D.
Attorney of Record
Registration No. 62,793